

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2008-XXXX

WASTE DISCHARGE REQUIREMENTS
FOR
JOHN FISCALINI, DBA FISCALINI FARMS,
STANISLAUS COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. John Fiscalini, owner and operator of Fiscalini Farms, notified Regional Board staff on 2 January 2007 by phone that they were planning on installing a mesophilic anaerobic digester (hereafter "digester system") to the current waste handling and treatment system. Mr. Fiscalini submitted a Report of Waste Discharge (ROWD) on 20 February 2008 for the addition of the digester to the current dairy facility. The digester system will be owned and operated by John Fiscalini, and will digest a feedstock made up of a mixture of manure generated at the facility, cheese whey from the existing onsite cheese plant, and sudan green chop grown on site, to generate biogas. John Fiscalini is referred to in this Order as "Discharger". Fiscalini Farms dairy facility, including the digester system after it is installed, is referred to in this order as "facility."
2. The facility is not currently regulated under Order No. R5-2007-0035, Waste Discharge Requirements General Order for Existing Milk Cow Dairies (hereafter "General Order") because the facility disposes of whey generated by the on-site cheese plant into the wastewater storage lagoons. Pursuant to Provision E. 6. of the General Order, the Order does not apply to such facilities.
3. The Fiscalini Farms cheese plant is currently regulated under General Industrial Storm Water Permit, Water Quality Order No. 97-03-DWQ, NPDES No. CAS000001, and is identified by WDID No. 5S501013935. The Discharger has received several Notices of Non-Compliance under the General Industrial Storm Water Permit for failure to submit annual reports. The annual reports that were the subject of the Notices have been received. Although the Discharger has indicated that the cheese plant may be expanded in the future, this Order only addresses waste generated by the cheese plant as currently operated.
4. The facility is in the northwest portion of Section 5 and the northeast and western portion of Section 6, Township 3 South, Range 8 East, Mount Diablo Base and Meridian. The facility occupies Stanislaus County Assessor Parcel Numbers (APNs) 003-011-009, 012-004-004, 012-004-007, 012-004-018, 012-004-019, 012-004-020,

012-005-001, 012-005-003, and 012-005-004. The facility address is 4848 Jackson Road in Modesto, Stanislaus County as shown on Attachment A.

Existing Dairy Facility

5. Fiscalini Farms has been operating as a dairy on the site since 1912. The ROWD submitted in October 2005 reported the facility houses 1,650 milking and dry cows. The Preliminary Dairy Facility Assessment submitted in December 2007 reported the facility houses 1,700 milking and dry cows.
6. The existing dairy includes a milking parlor, wash pens, free stalls, feed lanes, open corrals, a mechanical separator, and two wastewater storage lagoons. A site plan showing the layout of existing installations is shown in Attachment B.
7. Currently, manure is washed from the dairy barn using fresh water recycled from the milk cooling system. Manure in the freestall barns is removed six times a day by flushing with recycled wastewater and excess dairy barn wash water through four flush tanks. The flushwater, (1,200,000 gallons per day), which includes approximately 4,000 gallons per day of cheese whey from the onsite cheese plant, is run through a mechanical slope screen separator before entering into the wastewater storage lagoons. Storm water runoff from the corrals and leachate from feed and manure storage areas are conveyed to the wastewater storage lagoons. A diagram of the current wastewater system is shown in Attachment C1.

Proposed Digester Facility and Operation

8. The September 2007 ROWD describes the proposed addition of a mesophilic anaerobic digester system that will generate biogas for power generation to sell to the local power company. The digester installation will include an above ground flush collection tank with a moisture barrier between the soil and the tank floor, a thickening tank, two 850,000 gallon capacity concrete above ground tanks with a moisture barrier between the soil and tank floor, and a combined heat and power (CHP) unit. The covers on each digester tank will be a double membrane, which includes an inner membrane that serves as gas storage and an outer membrane that protects against the weather. The digester tank system has a desulphurization unit installed to reduce hydrogen sulphide in the methane to 50 parts per million. The digester system is currently being constructed. A diagram of the digester system is shown on Attachment C2.
9. The digester system will require some modification in the dairy waste handling. Feed lanes and free stalls will continue to be flushed. In addition 4,000 gallons per day of whey is also used to flush. Manure gathered by flushing will be routed to the flush collection tank and thickening tank. In the thickening tank the manure will be separated so material on the bottom of the tank is about eight to ten percent (8-10%)

solids. The supplemental feedstock of sudan green chop is added directly to the digester tanks.

10. A total of 40,000 gallons per day of the 8 – 10% solids material will be removed from the bottom of the thickening tank and added to the digester tanks daily. In addition up to 30 tons of sudan green chop will be added to the two digester tanks daily. Of the remaining liquid in the thickening tank, 1,000,000 gallons is returned to the flush tank system and 160,000 gallons is sent to the wastewater storage lagoons daily. The hydraulic retention time is approximately 24-30 days in the tanks. Digester effluent will be removed from the digester daily and passed through two screw press separators. Separated digester liquid effluent will go to the wastewater storage lagoons; the separated digester solids will be stored on a concrete pad until they are either used onsite for animal bedding or sold off site.
11. Methane produced during digestion will be conveyed to the CHP unit where it will be converted to electrical power and heat. Excess moisture from the gas will be removed during its conveyance to the CHP unit through the use of water traps in the line. The electricity produced by the CHP unit will be used to power the dairy and onsite cheese facilities. The heat produced from the CHP unit will be transferred in the form of hot water for use in the dairy barn and the cheese facility. Any remaining heat will be sent to the digester tanks through heating coils in the walls of the tanks to maintain the tank temperature. Any excess electricity produced will be sold through a Power Purchase Agreement with Modesto Irrigation District.
12. Instead of a hydrogen sulphide scrubber, each digester tank is topped with a plastic net. Sulphur crystals will condense on the net. When the sulphur crystals are large enough, they will drop off the net and back into the digesting solution. Therefore, there will not be any separate scrubber effluent generated at the facility.
13. To optimize gas production, cheese whey from the onsite cheese plant, and sudan green chop from onsite crops will be mixed with manure for digester feedstock. No supplemental feedstock material will be imported to the facility for the digester.
14. Wastewater will be blended with irrigation water in the wastewater retention system prior to application to land application areas. The total dissolved solids (TDS) concentrations will vary over the storage period (November through February) with the input of storm water runoff into the wastewater retention system. The expected range of concentrations in the wastewater storage lagoons are: total nitrogen between 457 and 835 milligrams per liter (mg/L), total phosphorous between 54 and 110 mg/L, and TDS between 1,069 and 4,736 mg/L, depending upon the season. Historically, the TDS in lagoons water has not been measured. The numbers above are estimated and will be refined as future sampling is conducted.

15. For purposes of this Order, "waste" includes, but is not limited to: manure; cheese whey; leachate; wastewater; digester effluent; precipitation that contacts raw materials, products, or byproducts such as manure; supplemental feedstock; silage; milk; or bedding.

Wastewater Ponds and Volume of Liquid Waste

16. The facility's existing wastewater retention system comprises of two wastewater storage lagoons with an approximate total retention capacity of 5,584,364 cubic feet (with two feet of freeboard). The Confined Animal Regulations in Title 27 of the California Code of Regulations (Title 27 CCR) §22562 (d) require that, as a minimum, each pond shall be lined with, or underlain by, soils which contain at least 10 percent clay and not more than 10 percent gravel or artificial materials of equivalent impermeability. Testing indicated that soils in the northeast area of the lagoons were less than 10% clay. Therefore, stockpiled topsoil (13.5% clay) and soil from the southern portion of the lagoons (18% clay) were blended and placed in a one foot layer over the sides and bottom of the lagoons after excavation was complete. The final report was certified to meet the soil texture requirement by Mr. Jess Wry, California Registered Civil Engineer No. 5046, in a report prepared by Quality Control Inspection, Incorporated dated 14 June 1992.
17. Title 27 CCR §22563(a) requires that application of manure and wastewater to land application areas shall be at rates reasonable for the crop, soil, climate, special local situations, management system, and type of manure. The generally accepted best management practice for dairies is to provide for 120 days of wastewater storage during the winter months (December to March) when there is little, if any, irrigation demand. The existing retention capacity of the facility appears to be sufficient to hold dairy wastewater, including whey, through the winter months. Certification of adequate storage capacity will be provided as part of the Waste Management Plan.

Waste Application to Cropland

18. Best management practices for protection of water quality underlying the land application areas include application of waste at rates which are reasonable for the crop, soil, climate, special local situations, management system, and type of manure consistent with Title 27 CCR §22563(a). Reasonable application is considered to be application of wastes at a rate that does not unreasonably degrade and does not pollute the waters of California or create a nuisance condition. The constituents of concern in this facility's wastes are nutrients (nitrogen compounds, potassium and phosphorus) and non-nutrient salts. Recent information published by the University of California (UC) indicates that an appropriate nutrient loading rate is between 1.4 to 1.65 times the nitrogen harvest rates¹. Reasonable application requires careful

¹ University of California, Division of Agriculture and Natural Resources, Committee of Experts on Dairy Manure Management, Managing Dairy Manure in the Central Valley of California, September 2003, Revised February 2004, July 2004, and June 2005 pp 47.

timing and prudent monitoring of crop nutrient requirements, available nutrients in the soil, and water inputs. Reasonable application is achieved by the implementation of an appropriate Nutrient Management Plan (NMP) to maximize harvest and minimize leaching. Reasonable application of irrigation water (including leaching fraction) results in an irrigation efficiency of no less than 75 percent.

19. The Discharger owns and farms 480 acres of cropland divided into 9 separate fields where dairy waste is applied as shown on Attachment D. The Discharger triple crops the entire 480 acres with corn, winter forage, and sudan grass.

Site Specific Conditions

20. The facility is in an arid climate characterized by hot dry summers and mild winters. The rainy season generally extends from November through March. Occasional rains occur during the spring and fall months, but summer months are dry. Average annual precipitation and pan evaporation rates in the discharge area are about 12 inches and 69 inches, respectively, according to information published by the Western Regional Climate Center. The 25 year, 24 hour precipitation event for the area around the facility is approximately 2.5 inches, according to the National Oceanic and Atmospheric Administration for the Modesto area.
21. Soils in the facility vicinity are classified as Dinuba Fine Sandy Loam, Dinuba Sandy Loam, Fresno Sandy Loam, Hanford Sandy Loam, and Modesto Loam according to the United States Department of Agriculture Soil Conservation Service.
22. The production area of the facility and land application area is not within a 100-year floodplain, according to Federal Emergency Management Agency maps.
23. Land use surrounding the facility is predominantly agricultural. The City of Ripon is approximately four miles north of facility with the Stanislaus River between, the community of Salida is approximately three miles east of the facility, and the City of Modesto is approximately twelve miles southeast of the facility. Irrigation water is supplied to the facility from the Modesto Irrigation District via the canal onsite which bisects the property.
24. Consistent with the United States Clean Water Act (CWA) §502(14) and 40 CFR §§122. 2 and 122.23, the facility is a “concentrated animal feeding operation” and a “point source” and subject to the National Pollutant Discharge Elimination System (NPDES) permit program for any discharge to waters of the United States, other than discharges of agricultural storm water as defined in 40 CFR §122.23(e).

Groundwater Considerations

25. The facility obtains its irrigation water from the Modesto Irrigation District (MID) canal. There are nine monitoring wells, eight domestic wells and two irrigation wells

at the facility; however, irrigation well number 05 is not used and irrigation well number 04 is only used when the MID water is not flowing. Samples were collected from the on-site domestic and irrigation wells in October 2007 and analyzed for electrical conductivity and nitrate-nitrogen. In May 2003 the onsite groundwater monitoring wells were sampled and analyzed for several constituents. A summary of the results for electrical conductivity and nitrate as nitrogen from both sampling events is as follows:

Selected Constituents from Onsite Domestic and Irrigation Wells (October 2007)

Well Identification	Electrical Conductivity umhos/cm²	Nitrate – Nitrogen mg/L
04 Irrigation Well	850	20.7
05 Irrigation Well	1400	29.3
02 Domestic Well	1280	22.6
03 Domestic Well	810	8.3
06 Domestic Well	620	14.9
07 Domestic Well	880	16.4
08 Domestic Well	890	17.6
09 Domestic Well	1520	51.9
10 Domestic Well	1420	31.6
11 Domestic Well	1130	15.8
mg/L - milligrams per liter umhos/cm - micromhos per centimeter		

² Results for Electrical Conductivity were reported in mmhos/cm. This result was then converted to umhos/cm by multiplying by 1,000.

Selected Constituents from Onsite Groundwater Monitoring Wells (May 2003)

Well Identification	Electrical Conductivity umhos/cm³	Nitrate – Nitrogen mg/L
FMW1	2515	83.5
FMW2	2300	0.7
FMW3	3052	4.8
FMW4	1972	42.9
FMW7	1456	20.9
FMW8	1548	No Data
FMW9	1471	37.8
FMW10	1880	37.5
FMW11	2011	42.2
FMW12	1248	39.2
mg/L - milligrams per liter umhos/cm - micromhos per centimeter		

Basin Plan, Beneficial Uses, and Water Quality Objectives

26. The Water Quality Control Plan for the Sacramento and San Joaquin River Basins (4th Ed. Revised August 2006) (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for protecting waters of the basin.
27. Beneficial uses of groundwater in the surrounding area are municipal and domestic water supply, agricultural supply, industrial service supply, and industrial process supply.
28. The existing and potential beneficial uses of surface waters in the surrounding area include: municipal and domestic supply, agricultural supply, industrial process supply; water contact recreation; non-contact recreation; warm freshwater habitat; warm and cold migration; warm and cold spawning; and wildlife habitat.
29. The Basin Plan includes water quality objectives for chemical constituents that, at a minimum, requires water designated as domestic or municipal supply to meet the maximum contaminant levels (MCLs) specified in Title 22, CCR. The Basin Plan recognizes that the Regional Water Board may apply limits more stringent than

³ Results for Electrical Conductivity were reported in micro Siemens per centimeter (uS/cm). This result is equivalent to umhos/cm.

MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely effect beneficial uses.

30. The Basin Plan establishes narrative water quality objectives for Chemical Constituents, Tastes and Odors, and Toxicity. The Toxicity objective, in summary, requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life associated with designated beneficial uses.

Antidegradation

31. State Water Resources Control Board Resolution 68-16 ("Policy with Respect to Maintaining High Quality Waters of the State") (hereafter "Resolution 68-16"), prohibits degradation of groundwater unless it has been shown that:
- a. The degradation is consistent with the maximum benefit to people of the State;
 - b. The degradation will not unreasonably affect present and anticipated future beneficial uses;
 - c. The degradation does not result in water quality less than that prescribed in State and Regional policies, including violation of one or more water quality objectives; and,
 - d. The discharger employs the best practicable treatment or control (BPTC) of the wastes to minimize degradation.
32. Constituents of concern that have the potential to degrade groundwater underlying the facility include salt (primarily sodium and chloride), nutrients (nitrogen), and boron. This Order requires the Discharger to implement BPTC of the wastes to minimize degradation. Degradation can occur from seepage to groundwater from the waste management areas on the facility: the corral area (including dry waste, and feed storage areas); the wastewater storage lagoons; digester works; and the land application area. This Order, therefore, establishes schedules of tasks to evaluate BPTC for each waste management area of the facility and to characterize groundwater and all waste constituents. The evaluation of BPTC is required in the Order as outlined in the Provisions section below. Completion of this evaluation and implementation of the approved strategies developed from that work will ensure that BPTC and the highest water quality consistent with the maximum benefit to the people of the State will be achieved.
33. The Regional Water Board finds that some short-term degradation of groundwater beneath the facility is consistent with Resolution 68-16 provided that:
- a. The degradation is confined to a localized area and is temporally limited;
 - b. The Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating BPTC measures;

- c. The degradation is limited to waste constituents typically encountered in confined animal operations as specified in the groundwater limitations of this Order; and,
 - d. The degradation does not result in water quality less than that prescribed by the Basin Plan.
34. Some degradation of groundwater by some of the typical waste constituents released with discharge from a confined animal facility (after effective source management, treatment, and control) is consistent with maximum benefit to the people of California. Global Warming Solutions Act (AB-32) signed by the Governor on 27 September 2006 requires the development of market mechanism that will reduce greenhouse gas emissions. The proposed project reductions of greenhouse gas emissions from the dairy and the production of renewable energy are in keeping with the intent of AB-32. Secondary benefits include a reduction in ozone precursor compounds and hydrogen sulfide, which will improve air quality. Therefore, sufficient reason exists to accommodate groundwater degradation around the facility, provided that the terms of the Water Quality Control Plan for the Sacramento and San Joaquin River Basin are met. Degradation of groundwater by constituents (e.g., toxic chemicals) other than those specified in the groundwater limitations of this Order is prohibited.
35. This Order requires a study by the Discharger to determine background groundwater conditions and to evaluate the impact of the existing dairy facility on groundwater and its impact on beneficial uses. This Order contains tasks for assuring BPTC and the highest water quality consistent with the maximum benefit to the people of the State will be achieved. Accordingly, the discharge is consistent with the antidegradation provisions of Resolution 68-16. Based on the results of the scheduled tasks, the Regional Water Board may reopen this Order to consider groundwater and other limitations to comply with Resolution 68-16.

California Environmental Quality Act

36. With respect to the existing dairy facility, this Order is exempt from California Environmental Quality Act (CEQA) (Public Resources Code 21000, et seq.) under 14 CCR 15301.
37. Stanislaus County Planning and Community Development served as the lead agency for the digester project for purposes of CEQA. An Initial Study for the digester project was circulated by Stanislaus County Planning and Community Development on 20 January 2007. The Initial Study determined that the proposed project would not have a significant effect on the environment; therefore, a Negative Declaration was prepared. On 5 April 2007, Stanislaus County Planning and Community Development adopted the Negative Declaration and Use Permit No. 2006-36. As part of this Order, prohibitions have been included to protect surface water and groundwater quality. The protections include: Prohibition A.2., A.4. and A.9.; Discharge Specifications B.1.a., B.1.b., B.1.c., and B.1.d.; Land Application

Area Specification C.1.; Interim Groundwater Limitations D.1. and D.2.; and Provision E.11. and E.12.

General Findings

38. Pursuant to the California Water Code (CWC) §13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue this discharge. Failure to prevent conditions that create or threaten to create pollution or nuisance or that may unreasonably degrade waters of the State will be sufficient reason to modify, revoke, or enforce this Order, as well as prohibit further discharge.
39. This Order does not authorize violation of any federal, state, or local law or regulation. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, nor protect the Discharger from his liabilities under federal, state, or local law.
40. The CWC §13267(b) states that “In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including cost, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring these reports, the regional board shall provide the person with a written explanation with regard to the need for the reports and shall identify the evidence that supports requiring that person to provide the reports.”
41. The technical reports required by this Order and the attached Monitoring and Reporting Program No. R5-2008-____ are necessary to assure compliance with these waste discharge requirements. The Discharger operates the facility that discharges the wastes subject to this Order.
42. These requirements are consistent with Title 27 CCR, Division 2, Chapter 7, Subchapter 2, regulating confined animal facilities.
43. The California Department of Water Resources set standards for the construction and destruction of groundwater wells, as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the State or county pursuant to CWC §13801, apply to all monitoring wells.

Public Notice

44. The Discharger and interested agencies and persons have been notified of the intent to prescribe waste discharge requirements for this discharge, and they have been

provided an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

45. All comments pertaining to the discharge were heard and considered in a public meeting.

IT IS HEREBY ORDERED that, pursuant to §§ 13263 and 13267 of the CWC, John Fiscalini, dba Fiscalini Farms and their agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the CWC and regulations adopted thereunder, shall comply with the following:

A. Prohibitions

1. The discharge of waste other than as defined in Finding 15 above, or of hazardous waste as defined in Title 22 CCR §66261.3 et seq., is prohibited.
2. Application of undigested whey to the land application area is prohibited.
3. The direct or indirect discharge of waste and/or storm water from the production area of the facility to surface waters, except in accordance with the facility's NPDES permit, is prohibited. The production area is defined as that part of the facility that includes the animal confinement areas, manure storage area, raw material storage area, and waste containment area. It also includes the digester, feedstock handling and storage area, and effluent handling area.
4. The discharge of wastewater to surface waters from the land application area, except in accordance with the facility's NPDES permit, is prohibited. Irrigation supply water that comes into contact or is blended with waste or wastewater shall be considered wastewater under this Prohibition.
5. Precipitation-related discharges of manure, litter, or process wastewater from land application areas without an NPDES permit are prohibited, unless the discharges are agricultural storm water discharges as defined in 40 CFR § 122.23(e).
6. The disposal of dead animals in any liquid manure or wastewater system is prohibited. The disposal of dead animals at the facility is prohibited except when federal, state or local officials declare a State of Emergency and where all other options for disposal have been pursued and failed and the onsite disposal complies with all state and local policies for disposal of dead animals.
7. All animals shall be prohibited from entering any surface water within the animal confinement area (Title 27 CCR § 22561).
8. The application of waste to lands not owned, leased, or controlled by the Discharger without written permission from the landowner or in a manner not approved by the Executive Officer, is prohibited.
9. The direct discharge of wastewater into groundwater via backflow through water supply or irrigation supply wells is prohibited.

10. Exceeding the October 2005 mature herd size (milk and dry cows) as reported in Finding 5 by more than fifteen percent is prohibited. This allows a total mature herd size of 1,898 at the facility.
11. The land application of manure or wastewater to cropland for other than nutrient recycling is prohibited.
12. The use of manure to construct containment structures or to repair, replace, improve, or raise existing containment structures is prohibited.
13. Any increase in whey discharged to the wastewater retention system above the current level of 4,000 gallons per day is prohibited unless a new Report of Waste Discharge describing the increase is submitted and this Order is revised to incorporate the change in waste discharged.

B. Discharge Specifications

1. The collection, treatment, storage, or disposal of wastes at the facility shall not result in:
 - a. Discharge of waste constituents in a manner or place, or at concentrations or in a mass, which could cause exceedance of water quality objectives of surface water or groundwater;
 - b. Contamination or pollution of surface water or groundwater;
 - c. A condition of nuisance;
 - d. Exceedance of water quality objectives; or
 - e. Unreasonably affect beneficial uses (as defined by the CWC § 13050 and Basin Plan, Chapter 2).
2. The Discharger shall ensure that the salinity concentration in the wastewater storage lagoons will not exceed 1,069 milligrams per liter (mg/L) total dissolved solids (TDS) in the winter (December – March) or 4,736 mg/L TDS in the summer (April – November). This interim specification will be reconsidered upon completion of the BPTC review.
3. Wastes shall not be stored on site for more than 12 months. Any wastes not used within this time period must be removed from the property and disposed of properly.

C. Land Application Area Specifications

1. Title 27 CCR §22563(a) requires that application of manure and wastewater to land application areas shall be at rates reasonable for the crop, soil, climate, special local situations, management system, and type of manure. This Order will require a review of BPTC, which will better define what “reasonable” application rates are for nitrate and non-nutrient salts. For purposes of this Order, non-nutrient salts are defined as the mass of Total Dissolved Solids minus the mass of

nitrogen, potassium, and phosphorus utilized by the crop(s) being grown in the field

2. Land application of all waste from the facility shall be conducted in accordance with a Nutrient Management Plan (NMP) prepared by a specialist who is certified in developing NMPs. The NMP shall reflect actual crops grown at the facility, the actual form of nutrients and non-nutrient salts applied to each field, and reasonable application rates. A certified specialist is a Professional Soil Scientist, Professional Agronomist, or Crop Advisor certified by the American Society of Agronomy or a Technical Service Provider certified in nutrient management in California by the Natural Resources Conservation Service (NRCS). The Executive Officer may approve alternative proposed specialists. Only NMPs prepared and signed by these parties will be considered certified.
3. The application of waste to the land application area shall be at rates that preclude development of vectors or other nuisance conditions and meet the conditions of the certified NMP. All wastewater applied to land application areas must infiltrate completely within 72 hours after application. Tailwater must be conveyed back to the wastewater retention system for storage and reuse.
4. Application of waste shall be timed to minimize nutrient movement below the root zone. Wastewater shall not be applied to land application areas during periods when the soil is at or above field moisture capacity.
5. Land application areas that receive dry manure shall be managed to minimize erosion. Crops must be planted within one month of waste solids application.
6. Waste solids and wastewater shall not be applied closer than 100-feet to any down gradient surface waters, open tile line structures, sinkholes, or other conduits to surface waters unless a 35-foot wide vegetated buffer (for surface waters) or physical barrier is substituted for the 100-foot setback or alternative conservation practices or field-specific conditions will provide pollutant reductions equivalent or better than the reductions achieved by the 100-foot setback.
7. Waste and land application areas shall be managed to prevent contamination of crops grown for human consumption. The term "crops grown for human consumption" refers only to crops that will not undergo subsequent processing which adequately removes potential microbial danger to consumers.
8. The Discharger shall have a written agreement with each third party that receives wastewater from the Discharger for its own use. Each written agreement shall be included in the Discharger's Nutrient Management Plan and Annual Report. The written agreement(s) shall be effective until the third party is covered under waste discharge requirements or a waiver of waste discharge requirements that are adopted by the Central Valley Water Board. The written agreement shall:
 - a. Clearly Identify:
 - i. The Discharger and dairy facility from which the wastewater originates,

- ii. The third party that will control the application of the wastewater to land application areas.
 - iii. The Assessor's Parcel Number(s) and the acreage(s) of the land application areas where the process wastewater will be applied, and
 - iv. The types of crops to be fertilized with the process wastewater.
 - b. Include an agreement by the third party to:
 - i. Use the wastewater at agronomic rates appropriate for the crops to be grown, and
 - ii. Prevent the runoff to surface waters of wastewater or of storm water or irrigation supply water that comes into contact with manure or is blended with wastewater.
 - c. Include a certification statement, as specified in General Reporting Requirements C.7 of the Standard Provisions and Reporting Requirements (which is attached to and made part of this Order), which is signed by both the Discharger and third party.
9. Land application of wastes for nutrient recycling from the facility shall not cause the underlying groundwater to contain any waste constituent, degradation product, or any constituent of soil mobilized by the interactions between applied wastes and soil or soil biota, to exceed the groundwater limitations set forth in this Order.

D. Interim Groundwater Limitations

1. These interim groundwater limitations are to be applied at the shallowest groundwater beneath the facility. These limitations are based on either the maximum contaminant level (MCL) for the constituent as published in Title 22 CCR or other applicable Basin Plan objectives but they may or may not reflect the appropriate final groundwater limitations for this site. Final limitations will be established following completion of work required by this Order. Release of waste constituents from any treatment, storage, or disposal component associated with the facility shall not cause or contribute to groundwater:
- a. Containing constituent concentrations in excess of the concentrations specified below or natural background quality (as determined pursuant to the study described in Finding 35 and Provision E.12, and updated as appropriate as a result of ongoing monitoring), whichever is greater:
 - i. Nitrate as nitrogen of 10 mg/L (Title 22 CCR MCL);
 - ii. Chloride of 250 mg/L (Title 22 CCR Secondary MCL);
 - iii. Boron of 1.0 mg/L (crop sensitivity);
 - iv. Total Dissolved Solids of 500 mg/L (Title 22 CCR Secondary MCL);

- v. Electrical Conductivity of 900 μ mhos/cm (Title 22 CCR Secondary MCL);
 - vi. Most probable number of total coliform (either *E. coli* or fecal coliform bacteria) not to exceed 2.2/100 milliliters (Title 22 CCR MCL);
 - vii. For constituents identified in Title 22 CCR, the MCLs quantified therein; and
 - b. Containing taste or odor-producing constituents, toxic substances, or any other constituents, in concentrations that cause nuisance or adversely affect beneficial uses.
2. Final groundwater limitations will be developed based upon the results of the BPTC evaluations and monitoring conducted as directed by this Order and reported consistent with the Provisions below.

E. Provisions

- 1. The Discharger shall comply with all applicable provisions of the CWC, Title 27 CCR, and the Water Quality Control Plan for the Sacramento and San Joaquin River Basins, Fourth Edition, Revised October 2007.
- 2. The Discharger shall comply with the attached Monitoring and Reporting Program No. ____ which is part of this Order, and future revisions thereto as specified by the Regional Water Board or the Executive Officer.
- 3. The Discharger shall submit a complete Report of Waste Discharge in accordance with the CWC § 13260 at least 140 days prior to any material change or proposed change in the character, location, or volume of the discharge, including any expansion of the dairy or cheese plant, addition of waste storage facilities or equipment, closure of the facility, or development of any new treatment technology.
- 4. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to the Regional Water Board at least 60 days in advance of the change.
- 5. If site conditions threaten to violate Prohibitions **A.3.** or **A.4.** or Discharge Specification **B.1.**, the Discharger shall take immediate action to preclude the violation, documenting the condition and all corrective actions. Such actions shall be immediately reported to the Regional Water Board and summarized in the annual monitoring report. Alterations for the production area to avoid a recurrence shall be submitted as a modification to the facility's Waste Management Plan (WMP).
- 6. Any instance of noncompliance with this Order constitutes a violation of the California Water Code and its regulations. Such noncompliance is grounds for enforcement action, and/or termination of the authorization to discharge.

7. This Order shall become effective upon adoption by the Regional Water Board.
8. If during the performance of the inspections required by the MRP attached to this order, deficiencies, defects, and/or impending failures are observed in any of the wastewater conveyance, control, and/or retention structures, the Discharger shall take immediate action to correct and/or prevent unauthorized release. The corrective action(s) should be documented and these records attached to the pertinent inspection report.
9. Technical reports required by this Order must be certified by an appropriately licensed professional as required in this Order and its Attachments. If the Executive Officer provides comments on any technical report, the Discharger shall address those comments.
10. **By 1 October 2008**, the Discharger shall submit a hydrogeologic report for the area affected or potentially affected by the facility to the Executive Officer. The technical report shall describe the underlying geology, existing wells (active or otherwise), and hydrogeology, including flow direction. The report shall include a summary of well construction on all groundwater monitoring wells. The plan shall also include data collected from May 2008 for the General Order spring sampling requirements and shall incorporate historic groundwater quality data collected from onsite monitoring wells.
11. **By 1 October 2008**, the Discharger shall submit a written work plan for a BPTC technical evaluation that sets forth a schedule for a systematic and comprehensive technical evaluation for each component of the facility's waste treatment and control to determine for each waste constituent BPTC as used in Resolution 68-16. The work plan shall contain a time schedule for completing the comprehensive technical evaluation. The schedule to complete the BPTC Technical Evaluation shall be as short as practicable, and shall not exceed two years. Upon written determination of adequacy of the technical report by the Executive Officer, the Provision shall be considered satisfied.
12. **By 1 July 2009**, the Discharger shall have conducted a study and provided a final report on background concentrations of nitrate and salinity (electrical conductivity or total dissolved solids) in groundwater.
13. **By 1 July 2009**, the Discharger shall submit a Salinity Evaluation and Minimization Plan that identify sources of salt in waste generated at the facility both in the dairy and digester operations. This report must evaluate measures that can be taken to minimize salt in the facility waste, and commit to implement these measures identified to minimize salt in the waste within the NMP. The report must include a proposed implementation schedule. The adequacy of the salinity evaluation, recommended measures to minimize salt in the wastes, and schedule are subject to the Executive Officer's review and determination.
14. **Prior to any digester effluent entering the wastewater retention system**, the Discharger shall formulate and implement a Waste Management Plan (WMP) to

demonstrate that waste management facilities, equipment, and practices in the production area meet the requirements of this Order. Additional requirements for preparing the WMP can be found in Attachment B of the Waste Discharge Requirements General Order R5-2007-0035 for Existing Milk Cow Dairies (Dairy General Order) at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2007-0035.pdf.

The Discharger shall comply with all requirements of Attachment B of the Dairy General Order except as otherwise explicitly stated in this Order. If the design, construction, operation, and/or maintenance of the facility does not comply with those requirements, the WMP must propose modifications and a schedule for modifications that will bring the dairy facility into compliance. The schedule must comply with the due dates in this Order. If the Executive Officer determines that any provisions of Attachment B of the Dairy General Order do not apply to this facility, the Executive Officer shall notify the Discharger that compliance with those provisions is not required.

In addition to the elements outlined in Attachment B of the Dairy General Order, the elements of the WMP for this facility shall include:

- a. A certification that the facility Operations and Maintenance (O&M) instructions for the dairy and digester operations address each waste handling component of the facility (dairy, and cheese plant) and standard and emergency procedures. The O&M instructions should include the facility Emergency Response Plan. The O&M should contain instructions for the wastewater conveyance and storage features (including tailwater recovery), feed and waste storage areas, the digester area and handling of digester feed stock and effluent, the handling and disposal/removal of cattle mortalities, and disposal/removal of spoiled products in the event of problems at the cheese plant. The O&M instructions should be written to ensure that all specifications, limitations and provisions of this Order are met and violations of prohibitions are prevented. A copy of these instructions should be available to employees at all times.

15. **Prior to the application of any wastewater containing digester effluent to land application areas**, the Discharger shall formulate and implement NMP for application of the facility waste to the facility's land application areas. The NMP shall be submitted to the Executive Officer for review and approval. Failure to comply with the NMP is a violation of this Order. A copy of the NMP must be maintained at the dairy. The NMP must provide for protection of both surface water and groundwater. The purpose of the NMP is to control the recycling of waste generated on the facility to minimize their potential to degrade groundwater quality. The objective of the NMP is to manage the application of the waste to the

land application areas and disposal off-site to achieve a balance between nutrients and salts generated, crop requirements, and leaching to underlying groundwater. Additional requirements for preparing the NMP can be found in Attachment C of the Dairy General Order at:

http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2007-0035.pdf.

The Discharger shall comply with all requirements of Attachment C of the Dairy General Order except as otherwise explicitly stated in this Order. If the Executive Officer determines that any provisions of Attachment C of the Dairy General Order do not apply to this facility, the Executive Officer shall notify the Discharger that compliance with those provisions is not required.

In addition to the elements outlined in Attachment C of the Dairy General Order, the elements of the NMP for this facility shall include:

- a. Formulating a water balance for the entire facility to estimate the amount of wastewater generated, the amount of irrigation water added to the wastewater retention system, and the amount of blended wastewater and irrigation water applied to the land application areas. The NMP shall reflect a goal of 75 percent irrigation efficiency, determined for each field.
 - b. Adoption of salt reduction actions as specified in the Salinity Evaluation and Minimization Plan (when approved).
 - c. Yearly evaluation of the results to modify the next year's NMP to maximize crop yield and minimize leaching potential and to be included in the facility's annual report.
 - d. **By 1 January 2010**, total nitrogen applied to the land application areas shall not exceed 1.4 times the nitrogen removed by the harvested portion of the crop. Additional application of nitrogen is allowable if plant tissue testing indicates it is necessary to obtain typical crop yield on written recommendations from a professional agronomist and records are maintained documenting the need.
16. **By two years from satisfaction of Provision E.11**, the written BPTC Technical Evaluation report shall be submitted with the Discharger's written recommendations for any facility modifications (e.g. component upgrade and retrofit) and/or operations modifications that are necessary to ensure BPTC. The proposed schedule for modifications shall be identified. The schedule shall be as short as practicable but in no case shall completion of the necessary improvements exceed four years past the Executive Officer's determination of the adequacy of the comprehensive technical evaluation submitted pursuant to this provision unless the schedule is reviewed and specifically approved by the Regional Water Board. The adequacy of the component evaluation,

recommended improvements, and schedule are subject to the Executive Officer's review and determination.

17. The groundwater limitations set forth in this Order are not final and not an entitlement. **By 1 July 2012**, the Discharger shall submit a Groundwater Limitations Analysis report proposing specific numeric groundwater limitations for each waste constituent that reflects full implementation of BPTC and reflecting applicable water quality objectives for that waste constituent. The report shall describe in detail how these were determined, considering actual data from monitoring wells comprising the approved groundwater monitoring program; impact reductions through full implementation of BPTC; and the factors in CWC §13241, Resolution 68-16, and the Basin Plan. The Discharger may submit results of a validated groundwater model or other hydrogeologic information to support its proposal.
18. The Discharger shall follow Attachment A of Monitoring and Reporting Program No. R5-2007-0035 for the installation of any new monitoring wells at the facility. Attachment A also sets forth requirements for components of a Monitoring Well Installation Completion Report for all new wells.
19. Upon completion of tasks set forth in **Provision E.17.**, the Regional Water Board shall consider the evidence provided and make a determination regarding (a) whether the Discharger has justified BPTC and (b) the appropriate final numeric groundwater limitations that comply with Resolution 68-16.
20. Modification of any existing lagoons or construction of any new lagoon shall not begin until the Executive Officer notifies the Discharger in writing that the design report is acceptable. The design and construction of such ponds shall conform to the requirements in General Specifications B.7 and B.8 of the General Order.
21. Waste shall not be placed into any new or modified wastewater storage lagoon until the Executive Officer notifies the Discharger in writing that the post construction report is acceptable. The post construction report shall conform to the requirements in General Specification B.9 of the General Order.
22. In the event the monitoring implemented under this Order detects evidence of a failure to meet **Discharge Specification B.1.**, the Discharger shall determine if the land application area or the wastewater retention system is the most probable source of the exceedance. If the land application area is the most probable source, the NMP shall be modified within 90 days. If the wastewater retention system is the most probable source, the Discharger shall propose modifications to the system within 90 days. The modifications must be designed to bring the facility into compliance with this Order. The Discharger shall notify the Regional Water Board in writing with details of any proposed changes before the changes are made in the field. Any NMP or WMP plan shall be updated as necessary or if the Executive Officer requests that additional information be included. Modification of any existing lagoon or construction of any new lagoon shall not begin until the

Executive Officer notifies the Discharger in writing that the design report is acceptable.

23. If the Regional Water Board or Executive Officer notifies the Discharger that the NMP is not consistent with this Order, revisions shall be made by a specialist who is certified in developing Nutrient Management Plans and submitted to the Regional Water Board in writing within 30 days of notification.
24. The level in the wastewater storage lagoons shall be kept at a minimum of two (2) feet from the top of the embankment. Less freeboard may be approved by the Executive Officer when a Civil Engineer who is registered pursuant to California law, or other person as may be permitted under the provisions of the California Business and Professions code to assume responsible charge of such work, demonstrates that the structural integrity of the pond will be maintained with the proposed freeboard.
25. Wastewater storage lagoons at the facility shall be managed and maintained to prevent breeding of mosquitoes and other vectors. In particular:
 - a. Small coves and irregularities shall not be allowed around the perimeter of the water surface;
 - b. Weeds shall be minimized through control of water depth, harvesting, or other appropriate method;
 - c. Dead algae, vegetation, and debris shall not accumulate on the water surface; and,
 - d. Management shall be in accordance with the requirements of the Mosquito Abatement District.
26. All precipitation and surface drainage from outside of the facility (i.e., "run on") shall be diverted away from any manured areas unless such drainage is fully contained (Title 27 § 22562(b)).
27. The wastewater storage lagoons must have a depth marker that clearly indicates the minimum capacity necessary to contain the runoff and direct precipitation from a 25-year, 24-hour storm event.
28. All roofs, buildings, and non-manured areas located in the production area at the facility shall be constructed or otherwise designed so that clean rainwater, including roof drainage, is diverted away from manured areas, including corrals and waste containment facilities, unless such drainage is fully contained in the wastewater retention system (Title 27 § 22562(b)).
29. The milk parlor, animal confinement area (including corrals), manure and feed storage areas, and the digester equipment area shall be designed and maintained to convey all water that has contacted animal wastes or feed to the wastewater retention system and to minimize standing water and the infiltration of water into the underlying soils. The Discharger shall, at a minimum of once per year, backfill

any slope loss with compacted, non-manured material to maintain pre-existing slopes.

30. Unlined ditches, swales, and/or earthen-berm channels may not be used for storage of wastewater, dry waste, or tailwater and may only be used for conveyance of wastewater from the retention lagoons to the land application areas, irrigation return water management, or temporary control of accidental spills.
31. The Discharger shall comply with all of the terms of this Order including the Standard Provisions and Reporting Requirements for Milk Cow Dairies dated August 2007, attached to and made part of this Order.
32. The Discharger shall maintain a copy of this Order and its attachments at the site to be available at all times to site-operating personnel. The Discharger, landowner and key operating personnel shall be familiar with the content of this Order.
33. The Regional Water Board will review this Order periodically and may revise requirements when necessary. If upon completion of the BPTC Technical Evaluation Report, the Regional Water Board determines that waste constituents in the discharge have reasonable potential to cause or contribute to an exceedance of any Groundwater Limitation; this Order may be reopened for consideration of additional or revision of appropriate numerical effluent or groundwater limitations for the problem constituents.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on _____.

PAMELA C. CREEDON, Executive Officer